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Michiharu Tanaka

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SUGHRUE-265550
2100 PENNSYLVANIA AVE. NW
WASHINGTON, DC 20037-3213

EXAMINER

PECHE, JORGE O

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/509,764	Applicant(s) TANAKA ET AL.
	Examiner JORGE O. PECHE	Art Unit 3664

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/31/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Receipt is acknowledged of applicant's argument/remarks filed on December 20, 2007, **claims 1-3** are pending and an action on the merits is as follows.

Applicant's arguments with respect to amended **claims 1-3** have been fully considered but are moot in view of the new ground(s) of rejection. Applicant has amended **claims 2-3** and added **claims 4-7**. **Claim 3** rejection under 35 U.S.C. 112, second paragraph had been withdrawn.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims **1-2** are rejected under 35 U.S.C. 102(b) as being unpatentable over **Ziegler et al. (Patent No.: US 6,778,867 B1)**.

Regarding **claim 1**, Ziegler discloses a monitoring and control of a handling device (robot) that is arranged in a protective device. The apparatus comprises:

- A plurality of CAN –controllers (pendants) held by two micro-processors (58 and 60) (logical operators)(see abstract, col. 8, lines 17-58; col. 9 line 36 – col. 10 line 38; Figures 1-4).

- The CAN-controllers send signal for controlling a robot (12) (see abstract, col. 7 line 58 - col. 8, line 58; col. 9 line 36 – col. 10 lines 38, Figures 1-4).

Regarding **claim 2**, Ziegler discloses a micro-computer (60) (main operator) and a micro-computer (58) (subordinate operator) for operating a robot (12) comprising:

- A micro-computer (60) (main operator) comprising a CAN-controller (64) (pendant/main enabling switch) and a micro-computer (58) (subordinate operator) comprising a CAN-controller (62) (pendant/subordinate enabling switch) to control drive units 24-30 of the robot (12) (circuit for putting a server power supply in an ON state when both switches are closed) (see col. 8, lines 17-58; col. 9 line 36 – col. 10 line 38; col. 15, lines 14-23; col. 17, lines 42-63; Figures 1-4). Where the micro-computer (60) (main operator) contains a high-ranking switch (col. 8, lines 47-58; col. 9 lines 60-8; Figures 2-4) and the micro-computer (58) (subordinate operator) contains protective door switches (20 and 22) (see col. 8, lines 8-58; Figures 2-4).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3-7 are rejected under 35 U.S.C. 103(a) as being unpatentable **Ziegler et al. (Patent No.: US 6,778,867 B1)**.

Regarding **claims 3-7**, Ziegler discloses a micro-computer (60) (main operator) and a micro-computer (58) (subordinate operator) for operating a robot (12) comprising:

- A plurality of CAN-controllers (enabling switch) (see col. 9 line 36 – col. 10 lines 38, Figures 1-4).
- A micro-computer (60) (main operator) comprising a CAN-controller (64) (pendant/main enabling switch) and a micro-computer (58) (subordinate operator) comprising a CAN-controller (62) (pendant/subordinate enabling switch) to control drive units 24-30 of the robot (12); where a detective system is implemented to determine whether or not micro-processor (58) (subordinate operator) transfers an actual status values within a range of safety position to control the robot (12) (see col. 8, lines 17-58; col. 9 line 36 – col. 10 line 38; col. 15, lines 14-23; col. 17, lines 42-63; Figures 1-4). Where the micro-computer (60) (main operator) contains a high-ranking switch (col. 8, lines 47-58; col. 9 lines 60-8; Figures 2-4) and the micro-computer (58) (subordinate operator) contains protective door switches (20 and 22) (see col. 8, lines 8-58; Figures 2-4).

However, Ziegler's invention fails to disclose a first logic circuit for logically summing a first logic state and a second logic state; and a second logic circuit for obtaining a logical product of a third logical state and a logical sum output by the first logic circuit by

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logically summing the first and second logic states, wherein: the first logic state corresponds to the opening and closing of the subordinate enabling switch, the second logic state corresponds to the opening and closing of the detection switch, and the third logic state corresponds to the opening and closing of the main enabling switch, wherein: a signal is supplied to a servo power supply controlling device that controls an ON/OFF state of the servo power supply, based on the logical product generated by the second logic circuit; wherein the servo power supply controlling device puts the servo power supply in an ON state in response to the logical product being a high; wherein the first logic state is a high when the subordinate enabling switch is closed and the first logic state is a low when the subordinate enabling switch is opened; wherein the second logic state is a high when the detection switch is closed and the detection logic state is a low when the detection switch is opened; wherein the third logic state is a high when the main enabling switch is closed and the third logic state is a low when the main enabling switch is opened.

However, Ziegler teaches a robot control system (34), protective door switches (20 and 22), a micro-computer (60) (main operator) comprising a CAN-controller (64) (pendant/main enabling switch), and a micro-computer (58) (subordinate operator) comprising a CAN-controller (62) (pendant/subordinate enabling switch) to control drive units 24-30 of the robot (12) in respond to safety criteria (see col. 8, lines 17-58; col. 9 line 36 – col. 10 line 38; col. 15, lines 14-23; col. 17, lines 42-63; Figures 1-4). Where the micro-computer (60) (main operator) contains a high-ranking switch (col. 8, lines 47-58; col. 9 lines 60-8; Figures 2-4) and the micro-computer (58) (subordinate operator)

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contains protective door switches (20 and 22) (see col. 8, lines 8-58; Figures 2-4).

Under this process, Ziegler discloses a system to control drive units 24-30 of the robot (12) by implementing micro-processors (58 & 60) and CAN-controller (62 & 64).

However, Ziegler is silent as to the specifics of applying logic gates and hardware components that include AND, OR, NOT, NAND, NOT, NAND, and/or NOR Boolean logic gates and as well as the implementation of their truth tables within the micro-processors to determine the high and/or low logic states and their logical sum and product.

Nevertheless, applying any mathematical formulae such as Boolean equations to derive the adequate logic gates to control (ON/OFF states) the actuator 24,26,28, and 30 of the robot (12) in response to safety criteria, including that of the claimed invention, would have been an obvious design choice for one of ordinary skill in the art because it facilitates known mathematical means (Boolean equations) for building not only a micro-processor or control system infrastructure and process, but also for combining several input signals, e.g. protective door switch (20 & 22), micro-processors (58 & 60) and their CAN controllers (62 & 64), to determine an adequate process . Since the invention fails to provide novel or unexpected result from the usage of said claimed apparatus, which directly/indirectly claimed the output result of a logical gate/Boolean equation, use of many mathematical means such as Boolean equations, including that of the claimed invention, would be an obvious matter of design choice within the skill of the art. The Applicant is invited to view a basic logic gate book for logical product being high, logical

state being low or high, and for combining multiple logic signals within combined OR/AND gate device.

Therefore, a person of ordinary skill in the art, upon reading the reference, can assume under the standard representation of binary signal and logic gate/Boolean equation, the open and close positions of both micro-computers (58 & 60), and protective door switches (20 & 22) would output a binary 0 and 1 respectively (logic sum, status signal, and logical product) to activate or deactivate the actuators.

Doing so would enhance a robotic safety control system to turn ON or OFF the actuators in accordance to high-ranking mechanism and safety criteria.

Response to Argument

In the Applicant's arguments filed on December 20, 2007 with respect to the rejections of claims 1-3 under 35 U.S.C. 102 (b) and 103(a) as being unpatentable over **Ziegler et al. (Patent No.: US 6,778,867 B1)** have been fully considered but are not persuasive.

Regarding Applicant's first argument (page 6, par. 2-3), "Applicants submit that Ziegler does not anticipate claims 1 and 2 because it does not teach every element claimed in these claims. Regarding claim 1, Applicants submit that Ziegler does not disclose the claimed pendants." The Examiner respectfully disagrees. The applicant defines on the specification the word pendant as an enabling switch, a circuit adapted to interlock with the enabling switch to generate a driving signal for a servo power supply

of the robot (see page 5, par. 1), which can be interpreted as a micro-processor or CAN-controller. Therefore, a thought reading of Ziegler reveals that what is argued is clearly and fully supported to sustain the proper rejection under 102(b). . Applicant is kindly invited to consider the reference as a whole and for this argument, concentrate on Ziegler's abstract, col. 8, lines 17-58; col. 9 line 36 – col. 10 line 38; col. 15, lines 14-23; col. 17, lines 42-63; Figures 1-4) . Furthermore, the Applicant is kindly invited to consider the above Office Action to view the ground of rejection.

Regarding Applicant's second argument (page 7, par. 2), "As discussed above, the CAN controllers 62 and 64 do not correspond to the claimed pendants at least because the CAN controllers are not used to teach the robots. Applicants submit that, because of the deficiencies noted above in the teachings of Zeigler, the Examiner has not met his burden of establishing anticipation. Therefore, for all the above reasons, independent claim 1 is not anticipated by Zeigler." The Examiner respectfully disagrees. The applicant defines on the specification the word pendant as an enabling switch, a circuit adapted to interlock with the enabling switch to generate a driving signal for a servo power supply of the robot (see page 5, par. 1), which can be interpreted as a micro-processor or CAN-controller to teach the robot. Therefore, a thought reading of Ziegler reveals that what is argued is clearly and fully supported to sustain the proper rejection under 102(b). . Applicant is kindly invited to consider the reference as a whole and for this argument, concentrate on Ziegler's abstract, col. 8, lines 17-58; col. 9 line 36 – col. 10 line 38; col. 15, lines 14-23; col. 17, lines 42-63; Figures 1-4) . Furthermore,

the Applicant is kindly invited to consider the above Office Action to view the ground of rejection.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JORGE O. PECHE whose telephone number is (571)270-1339. The examiner can normally be reached on 8:30 am - 5:30 pm Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Khoi H. Tran can be reached on 571-272-6919. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jorge O Peche/

Examiner, Art Unit 3664

February 29, 2008

/Khoi H Tran/

Supervisory Patent Examiner, Art Unit 3664